

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/625,993

A1
passes through the rectifiers 12 and is converted into direct current, the magnitude of the current is adjusted by the regulator 14, and the battery is recharged.

Page 2, please delete the fourth full paragraph and replace it with the following new paragraph:

A2
In the above automotive alternator, there is one slot 25 for each (1) set of the stator coils 23, each (1) phase and each (1) magnetic pole. Magnetic field leakage is seldom formed between adjacent claw-shaped magnetic poles 19, 20 of the rotor 6 via teeth 24 and the time over which magnetic flux leaks to the teeth 24 is short. Accordingly, there is only a small decrease in the effective magnetic field for the stator coils 23 occurring due to magnetic flux leakage, and surges in the magnetic flux are reduced.

Page 3, please delete the second full paragraph and replace it with the following new paragraph:

A3
In a conventional automotive alternator constructed as above, there is a problem in that the insertion time and installation characteristics of the stator coils 23 in the stator core 22 are poor.

Page 3, please delete the third full paragraph and replace it with the following new paragraph:

A4
FIG. 11 is an electromagnetic field analysis chart drafted by the present inventors. For the conventional automotive alternator, slot opening portions (the abscissa) are spaced a uniform

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interval of 30 degrees of electrical angle. In another example, with a mechanical angle of 24 degrees, electrical angles of 24 degrees and 36 degrees alternate and the interval is uneven. The ordinate shows ratios of higher harmonic components of magnetomotive force in the stator with respect to a fundamental wave. When the interval of the slot opening portions is equal to 30 degrees, fifth (5th) and seventh (7th) harmonics are not present in the magnetic flux density waveform. Nevertheless, eleventh (11th) and thirteenth (13th) higher harmonic components of magnetomotive force in the stator 8 are large, and when 11th or 13th higher harmonic components of magnetomotive force are present in the rotor 6 there are problems that, surges in magnetic flux cannot be sufficiently suppressed due to interference by the harmonic components and fluctuation in the generated voltage cannot be sufficiently suppressed. Moreover, magnetic attractive force is generated between the claw-shaped magnetic poles 19, 20 of the rotor 6 and the stator 8 and causes the stator 8, case 3 and the like or the claw-shaped magnetic poles 19, 20 of the rotor 6 to resonate which generates a sound that is unpleasant for passengers.

Page 6, please delete the second full paragraph under the centered heading and replace it with the following new paragraph:

Page 6, second full paragraph under the centered heading:

A5

As shown in Fig. 1, a stator core 122 according to the present invention is formed in a rectangular shape by laminating a predetermined number of sheets of a cold-rolled steel plate (SPCC) material, one of the low carbon steel plates, which are sheet-shaped magnetic members punched in a predetermined shape. A total number of seventy-two (72) teeth 124, which is the

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same as in the related art, are formed at one side of a yoke 123. Trapezoid-shaped slots 125 are formed between adjacent teeth 124.

Page 7, please delete the first full paragraph and replace it with the following new paragraph:

AL
FIG. 5 is a partial enlarged view of a stator core according to the present invention. In the present invention, although the total number of slots 125 is the same as that in a conventional example, 72 slots, and there are 12 rotor magnetic poles, an interval, taken from the center of air gaps of adjacent slot opening portions 127, in a circumferential direction, is uneven. That is, projections 124a, 124b extending in a circumferential direction are formed on the tips of the teeth 124 which partition the slots 125, and a mutual interval in the circumferential direction between the center of air gaps of adjacent slot opening portions 127 is varied by long and thin projections 124a and short projections 124b.

Page 8, please delete the first full paragraph and replace it with the following new paragraph:

A7
Also, the stator core 122 having a plurality of small thin teeth 124 in a plurality of slots is not (formed as) a conventional one-piece tubular object but is shaped from a laminated rectangular body into a cylindrical shape via a manufacturing process. Hence, mounting of the stator coils on the stator core is facilitated and the quality of the product may be improved while at the same time lowering the cost.

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Page 8, please delete the first full paragraph under the heading "Embodiment 2" and replace it with the following new paragraph:

A8
FIG. 7 is an enlarged view of an essential portion of a stator core showing another example of the stator for an automotive alternator according to the present invention. In a stator core 222 according to the present invention, adjacent teeth 224c, 224d are formed with, alternating uneven widths. Slots 225 are substantially equal in width. Slot opening portions 227 between wide teeth 224d and thin teeth 224c are comparable to air gaps of adjacent slot opening portions 127. As with slots 225, slot opening portions 227 between wide teeth 224d and thin teeth 224c have approximately the same widths, and an interval in the circumferential direction between the center of adjacent slot opening portions 227 is an uneven, repeated interval of 24 degrees and 36 degrees.

Page 8, please delete the second full paragraph under the heading "Embodiment 2" and replace it with the following new paragraph:

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Accordingly, projections 224a extending in a circumferential direction formed in slot opening portions 227 may be formed in the same shape. Consequently, similar effects may be obtained without forming the long and thin projections 124a and short projections 124b provided in Embodiment 1.

Page 8, please delete the last full paragraph and replace it with the following new paragraph: